

REMARKS/ARGUMENTS

Applicant has received and carefully reviewed the final Office Action of the Examiner mailed August 9, 2006. Claims 1-34 remain pending. Reconsideration and reexamination are respectfully requested.

Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 4-7 would be allowable if rewritten in independent for including all of the limitations of the base claim and any intervening claims.

Rejections under 35 U.S.C. § 102(b)

Claims 1-3 and 8 are rejected under 35 U.S.C. §102(b) as being anticipated by Persons (U.S. Patent No. 2,052,987). The Examiner acknowledges that Persons does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, but asserts that Persons' system has a valve connected to a valve stem, and that when the valve stem closes against the valve seat, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. Applicant respectfully traverses the rejection.

Persons teaches:

If some provision is not made for retarding the movement of the valve when it is closed by the spring motor, the accumulated momentum of the parts will be such that the shock of seating, even with the interposition of the spring 9, will cause the valve to rebound with the result that undesirable fluctuations will be caused in the flow of fluid through the valve.

(Emphasis added; see column 2, lines 42-49). Persons appears to teach an electric valve control that is configured to prevent this rebounding and fluid fluctuation.

Applicant notes that preventing rebound of a valve upon closing is not equivalent to preventing water hammer in a fluid system. These are distinct problems. Persons do not appear

to disclose a biasing mechanism that is structured to close the valve stem within a time period that would cause water hammer in the fluid system, and a brake for increasing the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system. Persons does not appear to teach anything with regard to water hammer. To the contrary, Persons appears to be directed to solving a different problem, that of rebounding and fluid fluctuation.

It appears the Examiner may be asserting the claimed structure is an inherent property of the Persons valve. Applicant submits that there is no basis for such an interpretation. MPEP 2112 IV. states:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)

(Emphasis added). Applicants submit that the claimed actuator assembly, in particular the biasing mechanism structured to close a valve stem within a time period that would cause water hammer in a fluid system, and the brake for increasing the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system, are not necessarily present in Persons. It appears the Examiner is asserting that the structure of Persons might have similar characteristics of the claimed structure, which is not a proper basis for rejection. Applicant submits that the valve of Persons is specifically designed and structured to prevent a valve from rebounding from its seat, and that such a structure would not necessarily be the same as the structure of the claimed biasing mechanism and brake.

In response to Applicant's previous arguments, the Examiner asserts that the biasing mechanism of Persons is structured to close the valve stem within a time period that would cause water hammer in a fluid system, thus the biasing mechanism has the same structure as claimed. In particular, the Examiner points to Persons' teaching of a brake that will "retard the speed of the device", and while the Examiner acknowledges that Persons does not particularly teach the brake as being structured to increase the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer, the Examiner asserts that Persons has such a structure. It appears that the Examiner is either asserting that Parsons inherently has the recited structure or property, or is taking Official Notice of the asserted facts. Inherency has already been discussed above.

With respect to Official Notice, Applicant submits that the facts asserted by the Examiner are not capable of instant and unquestionable demonstration as being well-known, as is required for the taking of Official Notice. Per MPEP 2144.04(C), Applicant respectfully traverses the taking of Official Notice and requests the Examiner provide documentary evidence supporting the rejection in the next office action if the rejection is maintained.

The elements of independent claim 1 are not merely intended use, but impart structural requirements for performing certain functions. Persons does not appear to teach or suggest the claimed structural elements. For these and other reasons, independent claim 1, and the claims dependent therefrom, are believed to be clearly patentable over Persons. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-3 and 8 are rejected under 35 U.S.C. § 102(e) as being anticipated by Min (US 2005/0092950). The Examiner asserts that Min discloses a motor brake structure for opening and closing a valve structure with the actuator assembly having a motor, a biasing mechanism for driving the valve stem in a direction opposite to the motor driving direction, and a brake that increases the time required for the closing of the valve by the biasing mechanism. Applicant respectfully traverses the rejection. As discussed above, the elements of the independent claims are not merely intended use, but impart structural requirements for performing certain functions. Min does not appear to teach such structural elements.

Regarding independent claim 1, Min does not appear to disclose a biasing mechanism that is structured to close a valve stem within a time period that would cause water hammer in the fluid system, and a brake for increasing the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system. Min appears to teach "a motor brake structure in which a rotation speed of a motor can be limited to a predetermined speedy level below when the motor is reversely rotated" (see paragraph [0012]) and "a motor brake structure in which a motor brake is provided using a soft material so that noise can be remarkably reduced" (see paragraph [0015]). Min thus appears to be directed to solving problems related to running a motor in reverse or changing the material of a brake to reduce noise. Applicant submits that Min does not appear to teach anything with regard to water hammer or a brake structure configured to eliminate it.

It appears the Examiner may be asserting the claimed structure is an inherent property of the Min brake. Applicant submits that there is no basis for such an interpretation. As discussed above, MPEP 2112 IV states that to establish inherency, extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that the mere fact that a certain thing may result from a given set of circumstances is not sufficient. Applicant submits that the claimed actuator assembly, in particular the biasing mechanism structured to close a valve stem within a time period that would cause water hammer in a fluid system, and the brake for increasing the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system, are not necessarily present in Min. It appears the Examiner is asserting that the structure of Min might have similar characteristics of the claimed structure, which is not a proper basis for rejection. Applicant submits that the brake of Min is specifically designed and structured to allow for reverse rotation of the motor with reduced noise and wear, and that such a structure would not necessarily be the same as the structure of the claimed biasing mechanism and brake.

In response to Applicant's previous arguments, the Examiner acknowledges that while Min does not particularly mention that the brake increases the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system,

Min's system does have a brake that will reduce the return speed of the biasing mechanism and this reducing of the speed of the device will increase the time period that the biasing mechanism closes the valve stem against a valve seat, with the increase in time period for closing the valve stem against the valve seat which would reduce the effect of the fluid in the fluid system contacting the valve stem thereby eliminating water hammer. The Examiner does not, however, provide any indication of the basis for these assertions. In light of the fact that Min does not teach the asserted structure, and the Examiner has not asserted such a teaching is found in Min, it appears the Examiner is either asserting that Min inherently has the recited structure, or is taking Official Notice of the asserted facts. Inherency has already been discussed above.

With respect to Official Notice, Applicant submits that the facts asserted by the Examiner are not capable of instant and unquestionable demonstration as being well-known, as is required for the taking of Official Notice. Per MPEP 2144.04(C), Applicant respectfully traverses the taking of Official Notice and requests the Examiner provide documentary evidence supporting the rejection in the next office action if the rejection is maintained.

The elements of independent claim 1 are not merely intended use, but impart structural requirements for performing certain functions. Min does not appear to teach or suggest the claimed structural elements. For these and other reasons, independent claim 1, and the claims dependent therefrom, are believed to be clearly patentable over Min. Reconsideration and withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 9-25, 27-30, and 33 are rejected as being unpatentable over Min. Applicants respectfully traverse the rejection. Regarding independent claim 9, the Examiner asserts that Min teaches the rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor, and that making such an adjustment would have been obvious to promote a longer service life of the actuator components. As stated above, MPEP 2143.01 III states that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the

combination. Applicant submits that there is no motivation or suggestion in Min to modify the brake to have a configuration in which it limits the rotational velocity of the output shaft of the motor to less than 1000 RPMs, as is recited in claim 9. Additionally, there is no indication or suggestion that making such a modification would result in a longer service life of the actuator components, or reduce water hammer.

Independent claim 21 recites, in part, an actuator assembly comprising a damping mechanism configured to limit a speed of the valve when the actuator assembly is moving the valve from the open position to the closed position such that the valve moves from the open position to the closed position in 4 seconds or more. Dependent claim 33 recites a similar element. Independent claim 27 recites, in part, a damping mechanism for limiting rotational velocity of the motor when the one or more springs are driving the gear assembly to the closed position, wherein the damping mechanism is configured to limit the rotational velocity of the motor only after the rotational velocity of the motor exceeds a threshold speed, wherein the threshold speed is 1000 RPMs or less. The Examiner acknowledges that Min fails to disclose such elements. As with claim 9, the Examiner asserts that it would have been obvious to alter the brake of Min to promote a longer service life of the actuator components. There is no indication or suggestion in Min that adjusting the brake in the system of Min to achieve the time period recited in claims 21 and 33 or the rotational velocity of the motor as recited in claim 27 would be a desirable change or that such modifications would result in a longer service life of the valve components, or reduce water hammer.

Independent claim 29 recites a method for reducing water hammer caused by operation of a valve involving, in part, the specific method step of moving the valve from the open position to the closed position in 4 seconds or more. The Examiner acknowledges that Min fails to disclose an element that performs the claimed method step. As stated above, MPEP 2143.01 III specifically states that the mere possibility that one could alter the device of Min to achieve the claimed method does not provide proper motivation for one to actually make such a change. Further, as stated above, there is no indication or suggestion in Min that adjusting the brake in the system of Min to achieve the time period recited in claim 29 would be a desirable change or

that such modification would result in a longer service life of the valve components, or reduce water hammer.

In response to Applicant's arguments, the Examiner asserts that Min teaches "the rotation speed of a motor is adjusted" and "a deformation degree of the brake 51 can be adjusted depending on the rotation speed of the rotor 53", and therefore it would have been obvious to adjust the rotation speed of the motor to a desired rpm and a desired valve closing time. Applicant respectfully traverses the rejection. While Min teaches that the rotation speed of the motor can be adjusted, there is no motivation for one of ordinary skill in the art to adjust the rotational velocity to less than 1000 rpm, as is specifically recited in independent claims 9 and 27, or to adjust the assembly to close a valve from the open position to the closed position in 4 seconds or more, as is specifically recited in independent claims 21 and 29. Applicant submits that Min does not teach or suggest the desirability of such a specific modification, and that absent a teaching or suggestion to modify Min to achieve the specifically claimed elements, the obviousness rejection is in error.

Thus, for at least these reasons, independent claims 9, 21, 27, and 29, and the claims dependent thereon are believed to be clearly patentable over Min. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 26 is rejected under 35 U.S.C. §103(a) as unpatentable over Min in view of Pasch et al. For at least the reasons set forth above, Min does not appear to teach or suggest the basic elements of independent claim 21, from which claim 26 depends. Pasch et al. does not appear to teach what Min lacks. Thus, for these and other reasons, dependent claim 26 is believed to be patentable over Min in view of Pasch et al.

Claims 31 and 32 are rejected as being unpatentable over Schreiner, Jr. et al. (US 6,073,907) in view of Min. The Examiner asserts that Schreiner, Jr. et al. discloses a method for replacing a valve actuator system by removing either the entire actuator or removing a casing to obtain access to the motor. The Examiner acknowledges that Schreiner, Jr. et al. fails to disclose using a motor having a brake to replace the motor in the housing, but asserts that it would have been obvious to one of ordinary skill in the art to use the motor with a brake as taught by Min in

the removable and interchangeable valve actuator system of Schreiner, Jr. et al. in order to prevent the valve components from being damaged. Applicant respectfully traverses the rejection.

As stated by the Examiner, while Schreiner, Jr. et al. teach a motor in their system, they do not teach a brake in the valve actuator system. Applicant submits that there is no motivation for one of ordinary skill in the art to replace the motor without a brake as taught by Schreiner, Jr. et al. with a motor having a brake. Schreiner, Jr. et al. teach:

the biasing force of spring 276 functions to return drive gear 252 to its position of FIG. 20 in which valve member 80 is in its open position of FIG. 9. Spring 274 engages the facing surface of rib 142 as drive gear 252 approaches its position of FIG. 20 to gradually slow movement of drive gear 252 as valve member 80 approaches its fully open position. Drive gear stop arm 266 engages a stop surface 279 provided on adaptor plate 108 to provide a positive stop for drive gear 252 and to maintain drive gear 252 in a predetermined position to provide a constant predetermined open position for valve member 80.

(Emphasis added; see column 14, lines 41-52). It would appear the valve system of Schreiner, Jr. et al. utilizes a spring and thus operates without the need for a brake. Further, it is unclear how adding a motor with a brake would prevent the valve components from being damaged, as asserted by the Examiner. The spring and drive gear stop arm disclosed by Schreiner, Jr. et al. would appear to provide the desired slowing and stopping action of the valve system to avoid damage to the valve system. Thus, Applicants submit that there is no motivation for one of ordinary skill in the art to modify the valve system of Schreiner, Jr. et al. to include elements of Min. Reconsideration and withdrawal of the rejection are respectfully requested.

Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-359-9348.

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Respectfully submitted,

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